THE ZEDDELIN AIRSHIP AN AERIAL ENGINE. Leaving the shed for an ascent

a retrospect of the year 1908 prob-ably the most striking thing about the period will be the wonderful advance made in the sphere of aerial navigation. In no preceding period of equal length has one fraction of the accomplishments of 1908 been achieved. New records for distance, height and practically every-thing else were made, and feats performed which even one year previous would have been deemed the ravings of an unbalanced mind. More flights were made in every part of the world in every conceivable type of air-cleaving machine and the public at large began to respect the prophecies of those who foretold a practical utilization of these strange birds of passage for sport, commerce and war. Apart from the world-wide sensational achievements of the Wright brothers, whose wonderful accomplishments on both are lost. sides of the Atlantic have been received with such acclaim, probably most interest attaches to the work in Germany of Count Zeppelin with an entirely different

type of air vessel. The Zeppelin airship is not an aeroplane like the Wrights' machines, but an airship combining the qualities of a balloon yet unlike the latter in that it is dirigible. The Zeppelin was, and is-there have been several-a great cylindrical frame work of aluminum, pointed at the ends and covered with linoleum. Inside a row of ordinary round balloons are inflated. Close beneath the cylindrical cigar-shaped body of the airship are suspended gondolas, which float on the water, often necessary when the ship is first launched from its shed on the waters of Lake Constance (where most of the flights have been held), or when alighting on the same body of water. The motors and propellors are well up on the sides of the so-called cigar, so that they push right in the line the body has to travel. By careful study Count Zeppelin has evolved a series of rudders and propellers, which enable him to go just where he wishes, thus realizing most remarkably wishes, thus realizing most remarkably

airship. The flight last August of this remarkable creation of the German scien-tist over the mountains of the German Swiss frontler, heralded around the world, awoke that self-same world to the possibilities of airships of this kind Even the wreck of the Zeppelin IV. meant nothing as concerns the merits of the machine, for the storm did most of the damage through the leakage of gas mingled with the air inside the alum! This mixture made a strong and powerful explosive, only ready spark of any kind to bring about the wreck. Had the Zeppelin been flying in the air at the time she might easily have been saved, for to airships air safety, just as water of great depth does to steamships, which in shallow water

The wonderful performance of this particular Zeppelin was accomplished on August 4, the trip being from Lake Con-stance to Basel and Strasburg down the Rhine to Mayence, a distance of 250 miles. Automobiles which attempted to follow it were left far behind, so great was the speed of the airship. The accident which destroyed the machine curred on the return trip, or, rather while preparations were being made for the return from Mayence. Count Zeppelin had telegraphed for more cylinders, and was waiting for them when a small cyclone arose, which dashed the airship, held by soldiers, to the ground and destroyed it in conjunction with the explosions which

came immediately afterward.

Throughout all Germany the loss of the wonderful machine was felt to be a national calamity, and messages of con-dolence and offering assistance were sent in from every corner of the empire. Subscription lists were opened at once in Berlin, Bremen, Stuttgart and other towns and cities in Germany and Switzerland to provide funds for the construction of a successor to the lost airship. A check from the imperial councilors for

AYH The German Emperor and Count Zeppelin

\$125,000, an advance on the budget appropriated by the state for aeronautical experiments, was sent on to the Count imnediately.

s on the part of experts in re gard to the Zeppelin and its type of airships for practical war purposes follow-ing the accident were many and varied. Some felt that it showed the airship would be of value only as a fortress bal-loon, especially the rigid and semirigid type like the Zeppelin, the other German and French war balloons, in contrast to the collapsible kind (ordinary war balloons) heretofore used by the United States and other governments. All the latter can be deflated at once, which was not true of the destroyed Zeppelin or any of its predecessors or its successor which have had an aluminum skin, which renders such a method of safety impos sible. Many authorities took the other point of view and asserted that the accipoint of view and asserted that the acci-dent to the Zeppelin was what might

happen to any airship, and did not dis prove the possibility and the probability of such machines becoming real factors in the wars of the future. Where an ortured when within gun range, the aluminum covering of machines like the Zep-pelin would render such a possibility re-

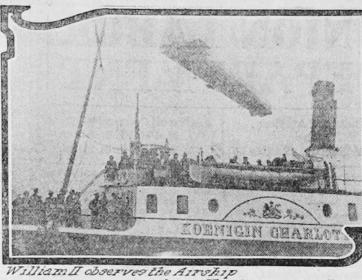
going to the Balloon Hall

mote, especially from small arms. Over one million dollars were sub-scribed for the new Zeppelin, whose speedy construction was made possible through the undamaged condition of much of the machinery of the Zeppelin IV. The new airship made its initial appearance in October. It carried ten passengers and went through evolutions, which for speed and stability could not be surpassed. At an average height of 300 feet the machine went through these evolutions and attained a speed of about 24 mlles an hour, traveling for over three At the height of 1,000 feet a wo

The Zeppelin Airship over Lake Constance turning to the right and left and then spinning completely around at an angle of 35 degrees. It raised its bow and its stern alternately, and made short, sharp dashes in any direction the engineer desired. It was a wonderful display of the osolute control of the machine. Later in the same month the Kaiser's

rother, Prince Henry, who visited this country, was a passenger and for a long time steered the machine. On this trip the airship, which is pictured herewith, stayed up for seven bours. Twenty-five miles an hour, against the wind were scored, on the return trip this was sept up to 30 The successful trip enjoyed by Prince Henry induced the crown prince to fly, so in November last Frederick Wilhelm boarded the airship and sailed from Friedrichshafen to Donaueschingen, at Baden, where the Kaiser himself was The airship followed the imperial train into the town at an altitude of be-tween 400 and 600 feet, the crown prince talking to his royal father through negaphone and the Kaiser acknowledging this by waving his hand,

Last, but not least, the Kalser bimself decided to fly with Count Zeppelin. On the day scheduled one of his staff, much resembling the German ruler did ascend and the news was telegraphed all over the world that the Kaiser had gone up. This was afterwards proven to be an error, though there is a certainty that the indefatigable Emperor will be found one of these days flying in the Zeppelin, thorough Interest. This interest is so keen that largely through his own sug-gestion, following a report by the special commission appointed by the war depart-ment, the German government has purchased the Zeppelin. Tals would seem to establish beyond question the opinion by eminent authorities in regard to the practicability for war purposes of this air-There can be no sweet without its bitter.



from the Queen Charlotte

and Count Zeppelin's record of a 12-hour flight with his destroyed craft was lost to him last fall when Major Gross' semirigid airship stayed in the air for 13 ours. It marks a triumph for the German army officers identified with aero-nautics, among whom Major Gress, who designed the Parseval and new Parseval, has long been one of the most conspicu-ous members. Professor Schutte, of the Technical University, at Dantzig, followed up the performance of Gross with an announcement of plans for a rigid airship which will exceed the Zeppelin in speed and carrying power. Wood lustead of aluminum will be used on the Schutte machine. Two 150-horsepower gas motors will propel the ship.

will propel the ship.

Count Zeppelin, who has done so much for aeronautics, is 70 years old. He is a retired army officer. At the age of 25 he was detailed as lieutenant of cavalry to observation duty with the Union Array in the Civil War. He accompanied the cavalry brigade commanded by Carl Schurz, and his first ascent was in a balloon sent up to investigate the Con-

federate lines. After the Austro-Prusslan War and the Franco-Prussian War, in both of which he served with distinction, he was retired as a general. Then it was he began his investigations in aero nautics.

Some interesting facts about his airship are, it can and has carried 16 persons at one time; it is over 440 feet long and 45 feet in diameter. Sixteen separate compartments hold the gas for support ing the airship. Blunt at the bow, it tapers to the stern, where the steering device is fixed. Underneath, two independent motors, each of 140-horsepower, are attached to separate platforms. Sleeping quarters for the crew are provided for and the airship carries a wire-less outfit. Such is the greatest airship of all times, the machine which will play an important part in any European war Germany may be involved in from this time forth, only instead of one, the German Army will have a fleet of similar machines led forth to battle by the Zeppelin Itself.

## Michigan Wealthy in Salt Mines.

Michigan Wealth:

Wea

records made in any one of the three records made in any one of the three preceding 12 months. So the steam utilized in evaporating the salt brine was not on hand as a waste product and the salt works showed a correspondingly smaller output. In a single county of Miebigan 5,000 people work regularly in getting up the salt brine a thousand feet below the surface of the ground. Soda ash, useful in the manufacture of glass and soap, is another of the products of brine mines. The workings of these peculiar mines are strange to the average reader. It seems unusual for these peculiar mines are strange to the average reader. It seems unusual for miners to go a thousand feet under ground to get salt water and to have the products of a mine pumped up and then carried off in enormous pipe lines to the factories where the evaporation takes place.

Yet this is the method of these mines, which are mines of brine and not of salt as one sees it in commerce. These supplies of salt brine are of such vast extent that untold ages must elapse, according to ex-

untold ages must clapse, according to ex-pert estimates, before there is any danger of extinction of the salt industries of



HOULD the Republic of Cuba lapse late the same government chaos that has beset her throughout her stormy history she will still have something for history she will still have something for which to thank the provisional government of the United States. There will remain the roads that this country has built during the past two years and there is no way in which the masses of the people can escape a mesting benefit from them.

Governor Charles E. Magoon and the American troops have withdrawn from Cuba. The work for which they had been sent to the island was completed. Order had been brought out of turmoil and government had been restored where guerilla warfare had previously existed. The people had been soothed and quieted guerilia warfare had previously existed. The people had been soothed and quieted from the heat of Latin factional strife and brought into the regular and peaceful pursuits of the many industrial opportupursuits of the many industrial opportunities offered by this fair land. An election had been held under the guidance of Governor Magoon, which had been a bona dide election, the first of its kind in any of the Latin countries of America, for, although many of these are republics in name, they are such in name only.

The foundation stone of the work that

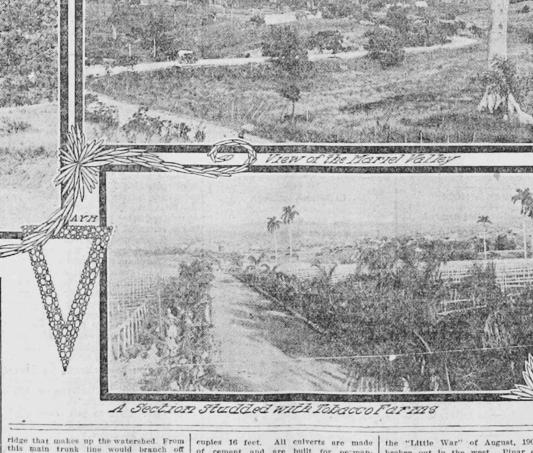
name, they are such in name only.

The foundation stone of the work that
this country did in Cuba for the benefit of
this country did in Cuba for the comthat people, was the development of com-munication into the interior by means of good wagon roads. When Governor Magoon assumed control and began looking about him for some vital things to do for the benefit of the island he immediately hit upon roads. He laid out a campaign for road improvement, and for two years followed it consistently. As a result followed it consistently. As a result there is a magnificent highway from one end to the other of the island and it is

a most indifferent country road and during the half of the year in which the rains fall it was absolutely impassable and the farmers were entirely cut off from communication with the outside world. This isolation was occasionally broken by the trip of a pack train which floundered through the mud to the great outside, but this was unusual. Under these conditions the people had found it not worth while to buy wagons and even during the dry seasons the pack train was the chief means of transportation.

The wheel traffic was carried on chiefly by means of the "carreta," the native two-wheeled cart of the island. If the ingenuity of the people had led them to search the world over for a vehicle less fitted for their purpose they would not have been able to find. The terretains the find it. The restains the search have able to find it. The restains the content of the propose they would not have been able to find it. The restains the content of the search to the search to the content of the train the content of the content of the trained to the content of the c

search the world over for a vehicle less fitted for their purpose they would not have been able to find it. The carreta is a clumsy, high-wheeled cart with an unusually narrow tire. Upon it may be placed loads as great as four and five tons. This makes an immense pressure on the two narrow tires and these cut deeply into the soft soil of the island. The wheels are set loosely on the axle and the load rocks back and forth, throwing all its weight now on one wheel and ing all its weight now on one wheel and now on the other and digging always into now on the other and digging always into the road. In the mud of the old roads these vehicles sunk often to the axie and on the new road they make constant re-pairs necessary. The provisional gov-ernment exerted all its influence to dis-courage their use, even going so far as to recommend their prohibition or to en-force the putting of a wider tire upon them. Under the old regime eight and ten oxen were necessary to haul one of these carts to market and days were need-



ridge that makes up the watershed. From this main trunk line would branch off roads that would lead to the chief harbor towns on each side, at least one harbor in each of the six provinces to be so favored. In this way every province would be connected by good roads with every other and every section of the island would be given an outlet to market. The plan has been consistently followed. Contracts have been let to native and outside men for the building of these roads and in some cases where these bidders were not found to be satisfactory the engineers of the army of occupation have taken hold and pushed the work. Nothing has been allowed to stand in the way, and such a stir of industry as the island never knew before has been in progress. work. Nothing has been allowed to stand in the way, and such a stir of industry as the island never knew before has been in progress.

Realizing that the torrential rains of

been in progress. It can improvement, and for two years followed it consistently. As a result there is a magnificent highway from one end to the other of the island and it is is done not not there is a magnificent highway from one end to the other of the island and it is is done in the other of the island and it is is done in the coasts.

Cuba was in a frightful condition as to roads. In the beginning such highways has she had originated from some cart following a cow trail in its wanderings in the vague unknown. They ran hither and thither without any system. In a desulting way the previous Spanish and Cuban thither without any system. In a desulting way the previous Spanish and Cuban and with no continuance of policy that would make the different parts of the island accessible to each other and bring them. Other was that had been built were not of the best grade and had been very indifferently maintained.

From the standpoint of the country as a forced to take his produce to market was forced to take his

of cement and are built for perman-ence. Bridges built throughout the island are the most modern of steel Island are the most modern of steel structures where this is found necessary, or are of cement or wood, as the occasion demanded. Where it was found necessary to protect the roads from inundation ditches have been dug to drain the lowlands. From every standpoint the construction has been thoroughly modern and up-to-date, and modern, too, from the standpoint of the most progressive nation in the world.

A pretty feature of the completed road is the well-built roadhouse at intervals of 15 miles. At these stations live the

sive nation in the world.

A pretty feature of the completed road is the well-built roadhouse at intervals of 15 miles. At these stations live the caretakers and crews that look after the road after it is completed. A special duty of these caretakers is to develop and plant trees along the roadway. So readily do trees grow in Cuba that it is not difficult to foresee the time, in the not too far distant future, when every one of these roads, from one end to the other of the island will be a bower of shade in which the traveler can ride from morning to night without feeling the rays of the tropical sun. These roads will be like that famous thoroughfare of Japan, upon which, in years gone by a poor baron planted choice shade trees because of the fact that he was a poor man and could serve his country with only his labors. His work has outlasted them all, and is, hundreds of years after his death, still serving the people well.

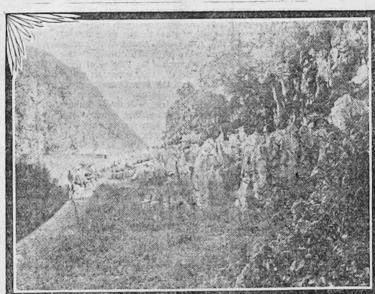
The people of Cuba were in a state of revolution and threatened civil war when the United States intervened. Famine was abroad in the land and the industries were paralyzed. It was in such an emergency as this that the opportunity to work on the roads was given the people. The latest revolution, for instance,

the "Little War" of August, 1906, had broken out in the west. Pinar del Rio had suffered from a cyclone, which added had suffered from a cyclone, which added to the straits in which her people found themselves. The prospect of a fight had drawn to that province the adventurers and malcontents from a great part of the island and things looked critical. It was at this juncture that the Provisional Government decided that this province was the point at which work should be begun. Labor on these roads was offered to all the idle and unemployed, but with the understanding that it was the work of peace and that lawlessness should cease. The opportunity to earn an immediate

understanding that It was the work of peace and that lawlessness should cease. The opportunity to earn an immediate competence was readily grasped by the factions and soon the province was agalu tranquil and, before long, prosperous. The same principle worked throughout the Island, and with the building of the roads came peace and prosperity. As the various sections were opened up, the farming people immediately grasped the opportunity that was offered them to market their crops and planting was begun. Despite the shortness of the time since the road building began the opportunity they are making possible to the farmers is already being felt and the country is again in a condition of prosperity. Yet the system is still incomplete and the time has been so short that crops have bardly had time to mature.

ture.

The area of the unrivaled tobacco lands of Cuba that will be in this way brought under cultivation will be greatly increased. The country will be opened up to a more progressive grade of farming in every way. The buge sugar plantations of the island may be added to by others that are now accessible. Fruit of the exported from a greatly increased area. The isolation and lack of market is done away with and the island is



Wierd Scenery along the Luis Lazo-Guane 2000d

given an opportunity to enjoy her oppor-tunities as she never enjoyed them be-safe to say that the roads in Cuba are

It is hard to appreciate the fact that these roads in Cuba are the best in the world. The natural thing would not be to attribute so progressive a thing to a revolution-racked, desultory, unstable republic in the tropics. Yet it is unquestionably the truth. The why of it can be readily understood. The whole system has been built within the past two years. Road building as a science has been developing most rapidly in the last decade. Things are now known about road build-Things are now known about road build-ing that were not dreamed of five years ago. Road building has become a na-tional and international question, and this country has shown a very active inter-est in it.

est in it.

Well, these roads in Cuba were practically built by the United States government. All the information that has been recently developed as to road building was applied in this instance. whole system is entirely modern. There

Tavorable circumstances. It is, therefore, safe to say that the roads in Cuba are better than those in the United States, in England, in France or any place else. This notion has served Cuba better than its citizens realize, and better than its citizens realize. Cuba herself will acknowledge. While giving that island the possibilities of good government under the steadying hand of the genial Provisional Governor, the United States has gone further and given her such improvements as she would never have gotten for herself. The island has herself paid for this improvement, as a matter of fact, but it has been no little expense on the part of the United States to administer the affairs of Cuba, and the spirit back of it is one never before shown in the history of the world, except in the Philippines. National and international philanthropy is a new thing in the world, but this country Cuba herself will acknowledge. tional and international philantirropy is a new thing in the world, but this country is demonstrating the possibility of a great nation helping a weak one, as a wealthy and wise man might help a poor one and show him the way to prosperity. These things are being accomplished and speak for themselves.

## When the Hittites Ruled the World.

Whay back 1,400 years before the beginning of the Christian era, long before Moses learned the mysteries of the Egyptian priesthood, there occurred a period of about 300 years, when those dim figures in prehistoric times, the Hittites ruled or rather dominated the diplomacy and the civilization of the then civilized world, which, after all, included only Egypt, India, Syria, Assyria and a few sections of Asia Minor bordering on the Caspian Sea and the Mediterial defensive alliance, with provisions WAY back 1,400 years before the beginning of the Christian era, long before Moses learned the mysteries of the Egyptian priesthood, there occurred a period of about 300 years, when these dim figures in prehistoric times, the Hittites ruled or rather dominated the diplomacy and the civilization of the then civilized world, which, after all, included only Egypt, India, Syria, Assyria and a few sections of Asia Minor bordering on the Caspian Sea and the Mediterranean.

ranean.

The Hittites are known to the average reader merely from the name appearing in the books of Moses, the latter two of these books. But this was hundreds of years after the Hittites lost their real power as world rulers and had become weak and scattered tribes. The hour of history wherein the Hittites were the world power is dim and vague indeed, yet this page of the story of the human race has been greatly cleared up by the discoveries of Dr. Hugo Winckler, the famous archaeologist of Berlin, at Boghaz Keul in Asia Minor. Here have been located the stupendous ruins of the ancient capital of the Hittite empire, the city of Khattu. Here Dr. Winckler discovered vast tablets of burnt clay on which canelform inscriptions of the most rare historical and archaeological value were carved 3,300 years ago.

The most important of these cuneiform inscriptions is described in a great. The Hittites are known to the average

were becoming a great military power the two kingdoms formed an offensive and defensive alliance, with provisions for extradition, especially of political offenders. This action of the dominating Hittites was brought about by Khittu Sila's growing dread of the newly formed and rapidly rising power of the Assyrian empire, which a few bundred years later conquered Babylon and the best section of the world of partial civilization.

The making of this treaty, which is the earliest known treaty ever made by manking which leaves us a record of historical value, occupied three months, and in it Egypt, the Hittite confederation and the power of Babylonia all bound themselves to fight against the swiftly rising power of the Assyrians.

The Biblical references of the Bible naturally enough did not reveal the Hittites as a world power or even of extreme local importance for the early struggles of the Jews under Joshua and other Jewish heroes occurred long after the Hittites had disappeared under the surging power of the Assyrian monarchy, which under Nebuchadnezzar, overcame

the Hittites had disappeared under the surging power of the Assyrian monarchy, which, under Nebuchadnezzar, overcame the Jews and sacked Jerusalem. This occurred in the period of the Prophet Daniel, who saw the Medes and Persians overthrow the Assyrians, just as hundreds of years before the Assyrians overcame the Hittites in Mesapotania.